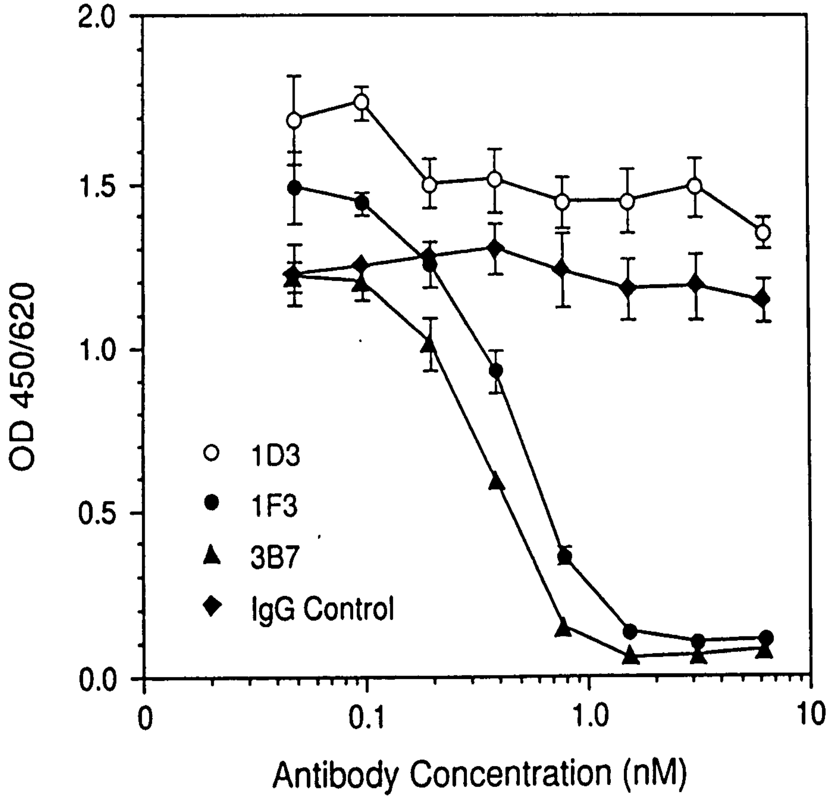
2.0
1.5
1.0
0.5
0.0
OD 450/620
0
0.1
1.0
10
Antibody Concentration (nM)
○ 1D3
● 1F3
▲ 3B7
◆ IgG Control

Figure 1

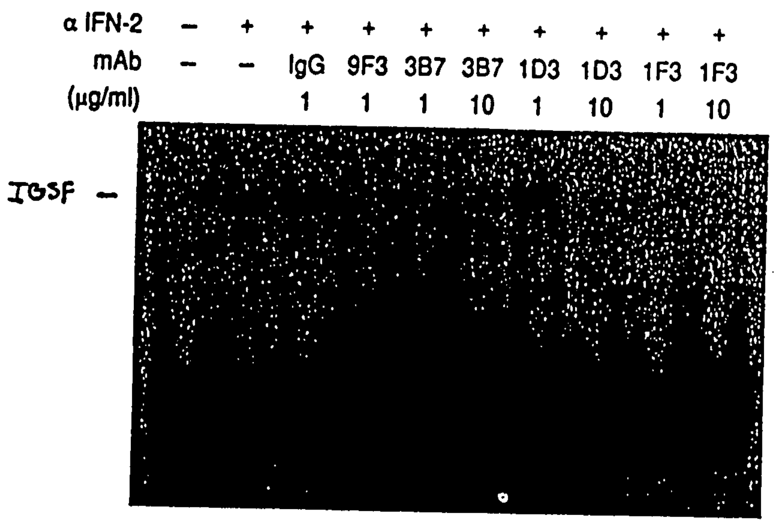
α IFN-2 – + + + + + + + + +
mAb – – IgG 9F3 3B7 3B7 1D3 1D3 1F3 1F3
(μg/ml) 1 1 1 10 1 10 1 10
IGSF –

Figure 2

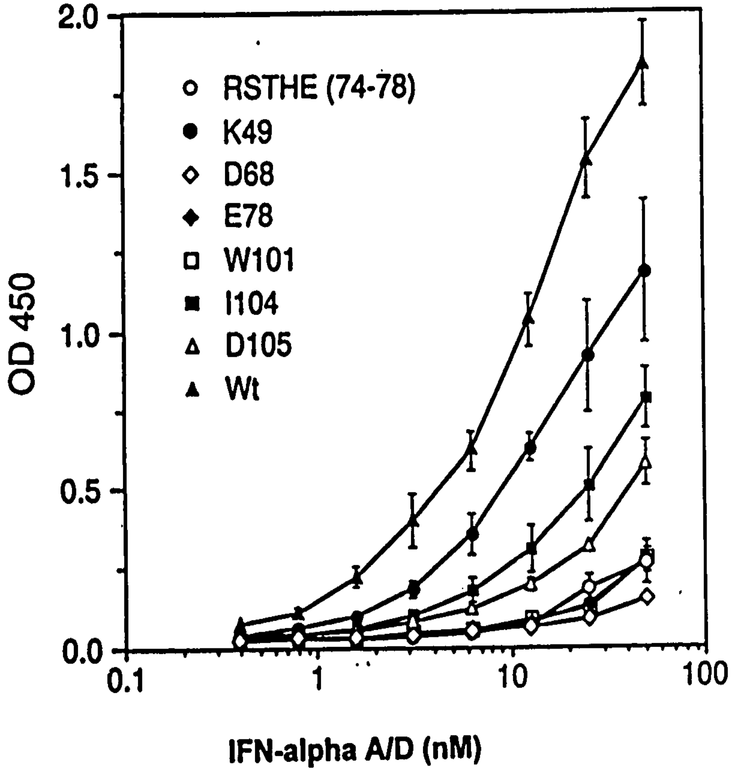

Figure 3A

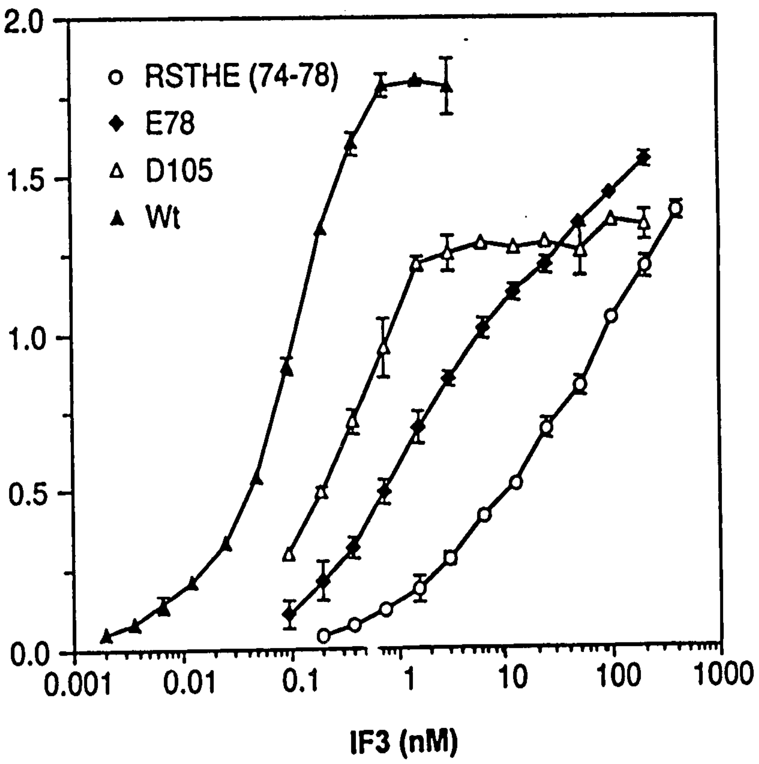

Figure 3B

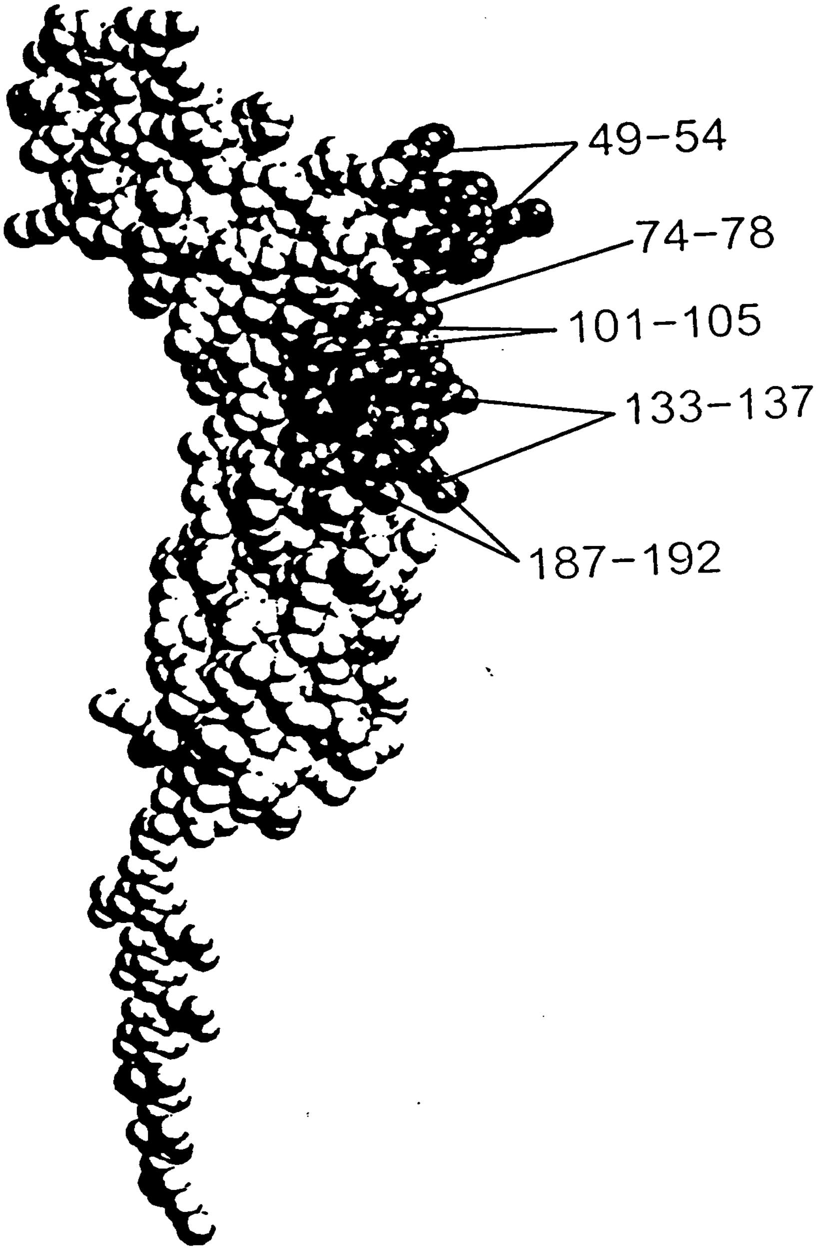

Figure 4

```
1 GAATTCCTAA AAATAGCAAA GATGCTTTTG AGCCAGAATG CCTTCATCGT CAGATCACTT AATTTGGTTC TCATGGTGTA TATCAGCCTC GTGTTTGGTA
  CTTAAGGATT TTTATCGTTT CTACGAAAAC TCGGTCTTAC GGAAGTAGCA GTCTAGTGAA TTAAACCAAG AGTACCACAT ATAGTCGGAG CACAAACCAT
1                                                                                                           Ile
      human alpha beta receptor

101 TTTCATATGA TTCGCCTGAT TACACAGATG AATCTTGCAC TTTCAAGATA TCATTGCGAA ATTTCCGGTC CATCTTATCA TGGGAATTAA AAAACCACTC
    AAAGTATACT AAGCGGACTA ATGTGTCTAC TTAGAACGTG AAAGTTCTAT AGTAACGCTT TAAAGGCCAG GTAGAATAGT ACCCTTAATT TTTTGGTGAG
  2   SerTyrAs pSerProAsp TyrThrAspG luSerCysTh rPheLysIle SerLeuArgA snPheArgSe rIleLeuSer TrpGluLeuL ysAsnHisSer

201 CATTGTACCA ACTCACTATA CATTGCTGTA TACAATCATG AGTAAACCAG AAGATTTGAA GGTGGTTAAG AACTGTGCAA ATACCACAAG ATCATTTTGT
    GTAACATGGT TGAGTGATAT GTAACGACAT ATGTTAGTAC TCATTTGGTC TTCTAAACTT CCACCAATTC TTGACACGTT TATGGTGTTC TAGTAAAACA
 35   IleValPro ThrHisTyrT hrLeuLeuTy rThrIleMet SerLysProG luAspLeuLy sValValLys AsnCysAlaA snThrThrAr gSerPheCys

301 GACCTCACAG ATGAGTGGAG AAGCACACAC GAGGCCTATG TCACCGTCCT AGAAGGATTC AGCGGGAACA CAACGTTGTT CAGTTGCTCA CACAATTTCT
    CTGGAGTGTC TACTCACCTC TTCGTGTGTG CTCCGGATAC AGTGGCAGGA TCTTCCTAAG TCGCCCTTGT GTTGCAACAA GTCAACGAGT GTGTTAAAGA
 68 AspLeuThrA spGluTrpAr gSerThrHis GluAlaTyrV alThrValLe uGluGlyPhe SerGlyAsnT hrThrLeuPh eSerCysSer HisAsnPheTrp

401 GGCTGGCCAT AGACATGTCT TTTGAACCAC CAGAGTTTGA GATTGTTGGT TTTACCAACC ACATTAATGT GATGGTGAAA TTTCCATCTA TTGTTGAGGA
    CCGACCGGTA TCTGTACAGA AAACTTGGTG GTCTCAAACT CTAACAACCA AAATGGTTGG TGTAATTACA CTACCACTTT AAAGGTAGAT AACAACTCCT
102   LeuAlaIl eAspMetSer PheGluProP roGluPheGl uIleValGly PheThrAsnH isIleAsnVa lMetValLys PheProSerI leValGluGlu

501 AGAATTACAG TTTGATTTAT CTCTCGTCAT TGAAGAACAG TCAGAGGGAA TTGTTAAGAA GCATAAACCC GAAATAAAAG GAAACATGAG TGGAAATTTC
    TCTTAATGTC AAACTAAATA GAGAGCAGTA ACTTCTTGTC AGTCTCCCTT AACAATTCTT CGTATTTGGG CTTTATTTTC CTTTGTACTC ACCTTTAAAG
135   GluLeuGln PheAspLeuS erLeuValIl eGluGluGln SerGluGlyI leValLysLy sHisLysPro GluIleLysG lyAsnMetSe rGlyAsnPhe

601 ACCTATATCA TTGACAAGTT AATTCCAAAC ACGAACTACT GTGTATCTGT TTATTTAGAG CACAGTGATG AGCAAGCAGT AATAAAGTCT CCCTTAAAAT
    TGGATATAGT AACTGTTCAA TTAAGGTTTG TGCTTGATGA CACATAGACA AATAAATCTC GTGTCACTAC TCGTTCGTCA TTATTTCAGA GGGAATTTTA
168 ThrTyrIleI leAspLysLe uIleProAsn ThrAsnTyrC ysValSerVa lTyrLeuGlu HisSerAspG luGlnAlaVa lIleLysSer ProLeuLysCys

701 GCACCCTCCT TCCACCTGGC CAGGAATCAG AATCAGCAGA ATCTGCCGAC AAAACTCACA CATGCCCACC GTGCCCAGCA CCTGAACTCC TGGGGGGACC
    CGTGGGAGGA AGGTGGACCG GTCCTTAGTC TTAGTCGTCT TAGACGGCTG TTTTGAGTGT GTACGGGTGG CACGGGTCGT GGACTTGAGG ACCCCCCTGG
202   ThrLeuLe uProProGly GlnGluSerG luSerAlaGl uSerAlaAsp LysThrHisT hrCysProPr oCysProAla ProGluLeuL euGlyGlyPr
                                                                  IgG1

801 GTCAGTCTTC CTCTTCCCCC CAAAACCCAA GGACACCCTC ATGATCTCCC GGACCCCTGA GGTCACATGC GTGGTGGTGG ACGTGAGCCA CGAAGACCCT
    CAGTCAGAAG GAGAAGGGGG GTTTTGGGTT CCTGTGGGAG TACTAGAGGG CCTGGGGACT CCAGTGTACG CACCACCACC TGCACTCGGT GCTTCTGGGA
235   SerValPhe LeuPheProP roLysProLy sAspThrLeu MetIleSerA rgThrProGl uValThrCys ValValValA spValSerHi sGluAspPro
```

Figure 5A

```
901 GAGGTCAAGT TCAACTGGTA CGTGGACGGC GTGGAGGTGC ATAATGCCAA GACAAAGCCG CGGGAGGAGC AGTACAACAG CACGTACCGA GTGGTCAGCG
    CTCCAGTTCA AGTTGACCAT GCACCTGCCG CACCTCCACG TATTACGGTT CTGTTTCGGC GCCCTCCTCG TCATGTTGTC GTGCATGGCT CACCAGTCGC
268 GluValLysP heAsnTrpTy rValAspGly ValGluValH isAsnAlaLy sThrLysPro ArgGluGluG lnTyrAsnSe rThrTyrArg ValValSerVal

1001 TCCTCACCGT CCTGCACCAG GACTGGCTGA ATGGCAAGGA GTACAAGTGC AAGGTCTCCA ACAAAGCCCT CCCAGCCCCC ATCGAGAAAA CCATCTCCAA
     AGGAGTGGCA GGACGTGGTC CTGACCGACT TACCGTTCCT CATGTTCACG TTCCAGAGGT TGTTTCGGGA GGGTCGGGGG TAGCTCTTTT GGTAGAGGTT
302   LeuThrVa lLeuHisGln AspTrpLeuA snGlyLysGl uTyrLysCys LysValSerA snLysAlaLe uProAlaPro IleGluLysT hrIleSerLys

1101 AGCCAAAGGG CAGCCCCGAG AACCACAGGT GTACACCCTG CCCCCATCCC GGGAAGAGAT GACCAAGAAC CAGGTCAGCC TGACCTGCCT GGTCAAAGGC
     TCGGTTTCCC GTCGGGGCTC TTGGTGTCCA CATGTGGGAC GGGGGTAGGG CCCTTCTCTA CTGGTTCTTG GTCCAGTCGG ACTGGACGGA CCAGTTTCCG
335  AlaLysGly GlnProArgG luProGlnVa lTyrThrLeu ProProSerA rgGluGluMe tThrLysAsn GlnValSerL euThrCysLe uValLysGly

1201 TTCTATCCCA GCGACATCGC CGTGGAGTGG GAGAGCAATG GGCAGCCGGA GAACAACTAC AAGACCACGC CTCCCGTGCT GGACTCCGAC GGCTCCTTCT
     AAGATAGGGT CGCTGTAGCG GCACCTCACC CTCTCGTTAC CCGTCGGCCT CTTGTTGATG TTCTGGTGCG GAGGGCACGA CCTGAGGCTG CCGAGGAAGA
368  PheTyrProS erAspIleAl aValGluTrp GluSerAsnG lyGlnProGl uAsnAsnTyr LysThrThrP roProValLe uAspSerAsp GlySerPhePhe

1301 TCCTCTACAG CAAGCTCACC GTGGACAAGA GCAGGTGGCA GCAGGGGAAC GTCTTCTCAT GCTCCGTGAT GCATGAGGCT CTGCACAACC ACTACACGCA
     AGGAGATGTC GTTCGAGTGG CACCTGTTCT CGTCCACCGT CGTCCCCTTG CAGAAGAGTA CGAGGCACTA CGTACTCCGA GACGTGTTGG TGATGTGCGT
402   LeuTyrSe rLysLeuThr ValAspLysS erArgTrpGl nGlnGlyAsn ValPheSerC ysSerValMe tHisGluAla LeuHisAsnH isTyrThrGln

1401 GAAGAGCCTC TCCCTGTCTC CGGGTAAATG AGTGCGACGG CCCTAGAGTC GACCTGCAGA AGCTTAGAAC CGAGGGGCCG CCATGGCCCA ACTTGTTTAT
     CTTCTCGGAG AGGGACAGAG GCCCATTTAC TCACGCTGCC GGGATCTCAG CTGGACGTCT TCGAATCTTG GCTCCCCGGC GGTACCGGGT TGAACAAATA
435  LysSerLeu SerLeuSerP roGlyLysOP *   (SEQ ID NO.26)
                                                                                                  sv40 early
                                                                                             poly A

1501 TGCAGCTTAT AATGGTTACA AATAAAGCAA TAGCATCACA AATTTCACAA ATAAAGCATT TTTTTCACTG CATTCTAGTT GTGGTTTGTC CAAACTCATC
     ACGTCGAATA TTACCAATGT TTATTTCGTT ATCGTAGTGT TTAAAGTGTT TATTTCGTAA AAAAAGTGAC GTAAGATCAA CACCAAACAG GTTTGAGTAG

1601 AATGTATCTT ATCATGTCTG GATCGATCGG GAATTAATTC GGCGCAGCAC CATGGCCTGA AATAACCTCT GAAAGAGGAA CTTGGTTAGG TACCTTCTGA
     TTACATAGAA TAGTACAGAC CTAGCTAGCC CTTAATTAAG CCGCGTCGTG GTACCGGACT TTATTGGAGA CTTTCTCCTT GAACCAATCC ATGGAAGACT
                                      sv40 origin

1701 GGCGGAAAGA ACCAGCTGTG GAATGTGTGT CAGTTAGGGT GTGGAAAGTC CCCAGGCTCC CCAGCAGGCA GAAGTATGCA AAGCATGCAT CTCAATTAGT
     CCGCCTTTCT TGGTCGACAC CTTACACACA GTCAATCCCA CACCTTTCAG GGGTCCGAGG GGTCGTCCGT CTTCATACGT TTCGTACGTA GAGTTAATCA

1801 CAGCAACCAG GTGTGGAAAG TCCCCAGGCT CCCCAGCAGG CAGAAGTATG CAAAGCATGC ATCTCAATTA GTCAGCAACC ATAGTCCCGC CCCTAACTCC
     GTCGTTGGTC CACACCTTTC AGGGGTCCGA GGGGTCGTCC GTCTTCATAC GTTTCGTACG TAGAGTTAAT CAGTCGTTGG TATCAGGGCG GGGATTGAGG
```

Figur 5B

```
1901 GCCCATCCCG CCCCTAACTC CGCCCAGTTC CGCCCATTCT CCGCCCCATG GCTGACTAAT TTTTTTTATT TATGCAGAGG CCGAGGCCGC CTCGGCCTCT
     CGGGTAGGGC GGGGATTGAG GCGGGTCAAG GCGGGTAAGA GGCGGGGTAC CGACTGATTA AAAAAAATAA ATACGTCTCC GGCTCCGGCG GAGCCGGAGA

2001 GAGCTATTCC AGAAGTAGTG AGGAGGCTTT TTTGGAGGCC TAGGCTTTTG CAAAAAGCTG TTAACAGCTT GGCACTGGCC GTCGTTTTAC AACGTCGTGA
     CTCGATAAGG TCTTCATCAC TCCTCCGAAA AAACCTCCGG ATCCGAAAAC GTTTTTCGAC AATTGTCGAA CCGTGACCGG CAGCAAAATG TTGCAGCACT
                                                                      start pUC118

2101 CTGGGAAAAC CCTGGCGTTA CCCAACTTAA TCGCCTTGCA GCACATCCCC CCTTCGCCAG CTGGCGTAAT AGCGAAGAGG CCCGCACCGA TCGCCCTTCC
     GACCCTTTTG GGACCGCAAT GGGTTGAATT AGCGGAACGT CGTGTAGGGG GGAAGCGGTC GACCGCATTA TCGCTTCTCC GGGCGTGGCT AGCGGGAAGG

2201 CAACAGTTGC GTAGCCTGAA TGGCGAATGG CGCCTGATGC GGTATTTTCT CCTTACGCAT CTGTGCGGTA TTTCACACCG CATACGTCAA AGCAACCATA
     GTTGTCAACG CATCGGACTT ACCGCTTACC GCGGACTACG CCATAAAAGA GGAATGCGTA GACACGCCAT AAAGTGTGGC GTATGCAGTT TCGTTGGTAT

2301 GTACGCGCCC TGTAGCGGCG CATTAAGCGC GGCGGGTGTG GTGGTTACGC GCAGCGTGAC CGCTACACTT GCCAGCGCCC TAGCGCCCGC TCCTTTCGCT
     CATGCGCGGG ACATCGCCGC GTAATTCGCG CCGCCCACAC CACCAATGCG CGTCGCACTG GCGATGTGAA CGGTCGCGGG ATCGCGGGCG AGGAAAGCGA

2401 TTCTTCCCTT CCTTTCTCGC CACGTTCGCC GGCTTTCCCC GTCAAGCTCT AAATCGGGGG CTCCCTTTAG GGTTCCGATT TAGTGCTTTA CGGCACCTCG
     AAGAAGGGAA GGAAAGAGCG GTGCAAGCGG CCGAAAGGGG CAGTTCGAGA TTTAGCCCCC GAGGGAAATC CCAAGGCTAA ATCACGAAAT GCCGTGGAGC

2501 ACCCCAAAAA ACTTGATTTG GGTGATGGTT CACGTAGTGG GCCATCGCCC TGATAGACGG TTTTTCGCCC TTTGACGTTG GAGTCCACGT TCTTTAATAG
     TGGGGTTTTT TGAACTAAAC CCACTACCAA GTGCATCACC CGGTAGCGGG ACTATCTGCC AAAAAGCGGG AAACTGCAAC CTCAGGTGCA AGAAATTATC

2601 TGGACTCTTG TTCCAAACTG GAACAACACT CAACCCTATC TCGGGCTATT CTTTTGATTT ATAAGGGATT TTGCCGATTT CGGCCTATTG GTTAAAAAAT
     ACCTGAGAAC AAGGTTTGAC CTTGTTGTGA GTTGGGATAG AGCCCGATAA GAAAACTAAA TATTCCCTAA AACGGCTAAA GCCGGATAAC CAATTTTTTA

2701 GAGCTGATTT AACAAAAATT TAACGCGAAT TTTAACAAAA TATTAACGTT TACAATTTTA TGGTGCACTC TCAGTACAAT CTGCTCTGAT GCCGCATAGT
     CTCGACTAAA TTGTTTTTAA ATTGCGCTTA AAATTGTTTT ATAATTGCAA ATGTTAAAAT ACCACGTGAG AGTCATGTTA GACGAGACTA CGGCGTATCA

2801 TAAGCCAACT CCGCTATCGC TACGTGACTG GGTCATGGCT GCGCCCCGAC ACCCGCCAAC ACCCGCTGAC GCGCCCTGAC GGGCTTGTCT GCTCCCGGCA
     ATTCGGTTGA GGCGATAGCG ATGCACTGAC CCAGTACCGA CGCGGGGCTG TGGGCGGTTG TGGGCGACTG CGCGGGACTG CCCGAACAGA CGAGGGCCGT

2901 TCCGCTTACA GACAAGCTGT GACCGTCTCC GGGAGCTGCA TGTGTCAGAG GTTTTCACCG TCATCACCGA AACGCGCGAG GCAGTATTCT TGAAGACGAA
     AGGCGAATGT CTGTTCGACA CTGGCAGAGG CCCTCGACGT ACACAGTCTC CAAAAGTGGC AGTAGTGGCT TTGCGCGCTC CGTCATAAGA ACTTCTGCTT

3001 AGGGCCTCGT GATACGCCTA TTTTTATAGG TTAATGTCAT GATAATAATG GTTTCTTAGA CGTCAGGTGG CACTTTTCGG GGAAATGTGC GCGGAACCCC
     TCCCGGAGCA CTATGCGGAT AAAAATATCC AATTACAGTA CTATTATTAC CAAAGAATCT GCAGTCCACC GTGAAAAGCC CCTTTACACG CGCCTTGGGG
```

Figure 5C

```
3101 TATTTGTTTA TTTTTCTAAA TACATTCAAA TATGTATCCG CTCATGAGAC AATAACCCTG ATAAATGCTT CAATAATATT GAAAAAGGAA GAGTATGAGT
     ATAAACAAAT AAAAAGATTT ATGTAAGTTT ATACATAGGC GAGTACTCTG TTATTGGGAC TATTTACGAA GTTATTATAA CTTTTTCCTT CTCATACTCA

3201 ATTCAACATT TCCGTGTCGC CCTTATTCCC TTTTTTGCGG CATTTTGCCT TCCTGTTTTT GCTCACCCAG AAACGCTGGT GAAAGTAAAA GATGCTGAAG
     TAAGTTGTAA AGGCACAGCG GGAATAAGGG AAAAAACGCC GTAAAACGGA AGGACAAAAA CGAGTGGGTC TTTGCGACCA CTTTCATTTT CTACGACTTC

3301 ATCAGTTGGG TGCACGAGTG GGTTACATCG AACTGGATCT CAACAGCGGT AAGATCCTTG AGAGTTTTCG CCCCGAAGAA CGTTTTCCAA TGATGAGCAC
     TAGTCAACCC ACGTGCTCAC CCAATGTAGC TTGACCTAGA GTTGTCGCCA TTCTAGGAAC TCTCAAAAGC GGGGCTTCTT GCAAAAGGTT ACTACTCGTG

3401 TTTTAAAGTT CTGCTATGTG GCGCGGTATT ATCCCGTGAT GACGCCGGGC AAGAGCAACT CGGTCGCCGC ATACACTATT CTCAGAATGA CTTGGTTGAG
     AAAATTTCAA GACGATACAC CGCGCCATAA TAGGGCACTA CTGCGGCCCG TTCTCGTTGA GCCAGCGGCG TATGTGATAA GAGTCTTACT GAACCAACTC

3501 TACTCACCAG TCACAGAAAA GCATCTTACG GATGGCATGA CAGTAAGAGA ATTATGCAGT GCTGCCATAA CCATGAGTGA TAACACTGCG GCCAACTTAC
     ATGAGTGGTC AGTGTCTTTT CGTAGAATGC CTACCGTACT GTCATTCTCT TAATACGTCA CGACGGTATT GGTACTCACT ATTGTGACGC CGGTTGAATG

3601 TTCTGACAAC GATCGGAGGA CCGAAGGAGC TAACCGCTTT TTTGCACAAC ATGGGGGATC ATGTAACTCG CCTTGATCGT TGGGAACCGG AGCTGAATGA
     AAGACTGTTG CTAGCCTCCT GGCTTCCTCG ATTGGCGAAA AAACGTGTTG TACCCCCTAG TACATTGAGC GGAACTAGCA ACCCTTGGCC TCGACTTACT

3701 AGCCATACCA AACGACGAGC GTGACACCAC GATGCCAGCA GCAATGGCAA CAACGTTGCG CAAACTATTA ACTGGCGAAC TACTTACTCT AGCTTCCCGG
     TCGGTATGGT TTGCTGCTCG CACTGTGGTG CTACGGTCGT CGTTACCGTT GTTGCAACGC GTTTGATAAT TGACCGCTTG ATGAATGAGA TCGAAGGGCC

3801 CAACAATTAA TAGACTGGAT GGAGGCGGAT AAAGTTGCAG GACCACTTCT GCGCTCGGCC CTTCCGGCTG GCTGGTTTAT TGCTGATAAA TCTGGAGCCG
     GTTGTTAATT ATCTGACCTA CCTCCGCCTA TTTCAACGTC CTGGTGAAGA CGCGAGCCGG GAAGGCCGAC CGACCAAATA ACGACTATTT AGACCTCGGC

3901 GTGAGCGTGG GTCTCGCGGT ATCATTGCAG CACTGGGGCC AGATGGTAAG CCCTCCCGTA TCGTAGTTAT CTACACGACG GGGAGTCAGG CAACTATGGA
     CACTCGCACC CAGAGCGCCA TAGTAACGTC GTGACCCCGG TCTACCATTC GGGAGGGCAT AGCATCAATA GATGTGCTGC CCCTCAGTCC GTTGATACCT

4001 TGAACGAAAT AGACAGATCG CTGAGATAGG TGCCTCACTG ATTAAGCATT GGTAACTGTC AGACCAAGTT TACTCATATA TACTTTAGAT TGATTTAAAA
     ACTTGCTTTA TCTGTCTAGC GACTCTATCC ACGGAGTGAC TAATTCGTAA CCATTGACAG TCTGGTTCAA ATGAGTATAT ATGAAATCTA ACTAAATTTT

4101 CTTCATTTTT AATTTAAAAG GATCTAGGTG AAGATCCTTT TTGATAATCT CATGACCAAA ATCCCTTAAC GTGAGTTTTC GTTCCACTGA GCGTCAGACC
     GAAGTAAAAA TTAAATTTTC CTAGATCCAC TTCTAGGAAA AACTATTAGA GTACTGGTTT TAGGGAATTG CACTCAAAAG CAAGGTGACT CGCAGTCTGG

4201 CCGTAGAAAA GATCAAAGGA TCTTCTTGAG ATCCTTTTTT TCTGCGCGTA ATCTGCTGCT TGCAAACAAA AAAACCACCG CTACCAGCGG TGGTTTGTTT
     GGCATCTTTT CTAGTTTCCT AGAAGAACTC TAGGAAAAAA AGACGCGCAT TAGACGACGA ACGTTTGTTT TTTTGGTGGC GATGGTCGCC ACCAAACAAA

4301 GCCGGATCAA GAGCTACCAA CTCTTTTTCC GAAGGTAACT GGCTTCAGCA GAGCGCAGAT ACCAAATACT GTCCTTCTAG TGTAGCCGTA GTTAGGCCAC
     CGGCCTAGTT CTCGATGGTT GAGAAAAAGG CTTCCATTGA CCGAAGTCGT CTCGCGTCTA TGGTTTATGA CAGGAAGATC ACATCGGCAT CAATCCGGTG
```

Figur 5D

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4401 CACTTCAAGA ACTCTGTAGC ACCGCCTACA TACCTCGCTC TGCTAATCCT GTTACCAGTG GCTGCTGCCA GTGGCGATAA GTCGTGTCTT ACCGGGTTGG
     GTGAAGTTCT TGAGACATCG TGGCGGATGT ATGGAGCGAG ACGATTAGGA CAATGGTCAC CGACGACGGT CACCGCTATT CAGCACAGAA TGGCCCAACC

4501 ACTCAAGACG ATAGTTACCG GATAAGGCGC AGCGGTCGGG CTGAACGGGG GGTTCGTGCA CACAGCCCAG CTTGGAGCGA ACGACCTACA CCGAACTGAG
     TGAGTTCTGC TATCAATGGC CTATTCCGCG TCGCCAGCCC GACTTGCCCC CCAAGCACGT GTGTCGGGTC GAACCTCGCT TGCTGGATGT GGCTTGACTC

4601 ATACCTACAG CGTGAGCATT GAGAAAGCGC CACGCTTCCC GAAGGGAGAA AGGCGGACAG GTATCCGGTA AGCGGCAGGG TCGGAACAGG AGAGCGCACG
     TATGGATGTC GCACTCGTAA CTCTTTCGCG GTGCGAAGGG CTTCCCTCTT TCCGCCTGTC CATAGGCCAT TCGCCGTCCC AGCCTTGTCC TCTCGCGTGC

4701 AGGGAGCTTC CAGGGGGAAA CGCCTGGTAT CTTTATAGTC CTGTCGGGTT TCGCCACCTC TGACTTGAGC GTCGATTTTT GTGATGCTCG TCAGGGGGGC
     TCCCTCGAAG GTCCCCCTTT GCGGACCATA GAAATATCAG GACAGCCCAA AGCGGTGGAG ACTGAACTCG CAGCTAAAAA CACTACGAGC AGTCCCCCCG

4801 GGAGCCTATG GAAAAACGCC AGCAACGCGG CCTTTTTACG GTTCCTGGCC TTTTGCTGGC CTTTTGCTCA CATGTTCTTT CCTGCGTTAT CCCCTGATTC
     CCTCGGATAC CTTTTTGCGG TCGTTGCGCC GGAAAAATGC CAAGGACCGG AAAACGACCG GAAAACGAGT GTACAAGAAA GGACGCAATA GGGGACTAAG

4901 TGTGGATAAC CGTATTACCG CCTTTGAGTG AGCTGATACC GCTCGCCGCA GCCGAACGAC CGAGCGCAGC GAGTCAGTGA GCGAGGAAGC GGAAGAGCGC
     ACACCTATTG GCATAATGGC GGAAACTCAC TCGACTATGG CGAGCGGCGT CGGCTTGCTG GCTCGCGTCG CTCAGTCACT CGCTCCTTCG CCTTCTCGCG

5001 CCAATACGCA AACCGCCTCT CCCCGCGCGT TGGCCGATTC ATTAATCCAG CTGGCACGAC AGGTTTCCCG ACTGGAAAGC GGGCAGTGAG CGCAACGCAA
     GGTTATGCGT TTGGCGGAGA GGGGCGCGCA ACCGGCTAAG TAATTAGGTC GACCGTGCTG TCCAAAGGGC TGACCTTTCG CCCGTCACTC GCGTTGCGTT

5101 TTAATGTGAG TTACCTCACT CATTAGGCAC CCCAGGCTTT ACACTTTATG CTTCCGGCTC GTATGTTGTG TGGAATTGTG AGCGGATAAC AATTTCACAC
     AATTACACTC AATGGAGTGA GTAATCCGTG GGGTCCGAAA TGTGAAATAC GAAGGCCGAG CATACAACAC ACCTTAACAC TCGCCTATTG TTAAAGTGTG

5201 AGGAAACAGC TATGACCATG ATTACGAATT AATTCGAGCT CGCCCGACAT TGATTATTGA CTAGTTATTA ATAGTAATCA ATTACGGGGT CATTAGTTCA
     TCCTTTGTCG ATACTGGTAC TAATGCTTAA TTAAGCTCGA GCGGGCTGTA ACTAATAACT GATCAATAAT TATCATTAGT TAATGCCCCA GTAATCAAGT
                                                from pPMLCMV beginning to HindIII,enhancers and promoter

5301 TAGCCCATAT ATGGAGTTCC GCGTTACATA ACTTACGGTA AATGGCCCGC CTGGCTGACC GCCCAACGAC CCCCGCCCAT TGACGTCAAT AATGACGTAT
     ATCGGGTATA TACCTCAAGG CGCAATGTAT TGAATGCCAT TTACCGGGCG GACCGACTGG CGGGTTGCTG GGGGCGGGTA ACTGCAGTTA TTACTGCATA

5401 GTTCCCATAG TAACGCCAAT AGGGACTTTC CATTGACGTC AATGGGTGGA GTATTTACGG TAAACTGCCC ACTTGGCAGT ACATCAAGTG TATCATATGC
     CAAGGGTATC ATTGCGGTTA TCCCTGAAAG GTAACTGCAG TTACCCACCT CATAAATGCC ATTTGACGGG TGAACCGTCA TGTAGTTCAC ATAGTATACG

5501 CAAGTACGCC CCCTATTGAC GTCAATGACG GTAAATGGCC CGCCTGGCAT TATGCCCAGT ACATGACCTT ATGGGACTTT CCTACTTGGC AGTACATCTA
     GTTCATGCGG GGGATAACTG CAGTTACTGC CATTTACCGG GCGGACCGTA ATACGGGTCA TGTACTGGAA TACCCTGAAA GGATGAACCG TCATGTAGAT
```

Figure 5E

```
5601 CGTATTAGTC ATCGCTATTA CCATGGTGAT GCGGTTTTGG CAGTACATCA ATGGGCGTGG ATAGCGGTTT GACTCACGGG GATTTCCAAG TCTCCACCCC
     GCATAATCAG TAGCGATAAT GGTACCACTA CGCCAAAACC GTCATGTAGT TACCCGCACC TATCGCCAAA CTGAGTGCCC CTAAAGGTTC AGAGGTGGGG

5701 ATTGACGTCA ATGGGAGTTT GTTTTGGCAC CAAAATCAAC GGGACTTTCC AAAATGTCGT AACAACTCCG CCCCATTGAC GCAAATGGGC GGTAGGCGTG
     TAACTGCAGT TACCCTCAAA CAAAACCGTG GTTTTAGTTG CCCTGAAAGG TTTTACAGCA TTGTTGAGGC GGGGTAACTG CGTTTACCCG CCATCCGCAC

5801 TACGGTGGGA GGTCTATATA AGCAGAGCTC GTTTAGTGAA CCGTCAGATC GCCTGGAGAC GCCATCCACG CTGTTTTGAC CTCCATAGAA GACACCGGGA
     ATGCCACCCT CCAGATATAT TCGTCTCGAG CAAATCACTT GGCAGTCTAG CGGACCTCTG CGGTAGGTGC GACAAAACTG GAGGTATCTT CTGTGGCCCT

5901 CCGATCCAGC CTCCGCGGCC GGGAACGGTG CATTGGAACG CGGATTCCCC GTGCCAAGAG TGACGTAAGT ACCGCCTATA GAGTCTATAG GCCCACCCCC
     GGCTAGGTCG GAGGCGCCGG CCCTTGCCAC GTAACCTTGC GCCTAAGGGG CACGGTTCTC ACTGCATTCA TGGCGGATAT CTCAGATATC CGGGTGGGGG

6001 TTGGCTCGTT AGAACGCGGC TACAATTAAT ACATAACCTT ATGTATCATA CACATACGAT TTAGGTGACA CTATAGAATA ACATCCACTT TGCCTTTCTC
     AACCGAGCAA TCTTGCGCCG ATGTTAATTA TGTATTGGAA TACATAGTAT GTGTATGCTA AATCCACTGT GATATCTTAT TGTAGGTGAA ACGGAAAGAG
            sp6 promoter                                                                          sp6 RNA start

6101 TCCACAGGTG TCCACTCCCA GGTCCAACTG CAGGCCATGG CGGCCATCGA TT    (SEQ ID NO.25)
     AGGTGTCCAC AGGTGAGGGT CCAGGTTGAC GTCCGGTACC GCCGGTAGCT AA
                                     cloning linker
```

Figure 5F